

Chapter 7: Implementation

7.1 Overview

The text in this chapter describes how the Greensboro Urban Area can turn the vision of a connected, integrated greenway, bicycle, and pedestrian system into a reality. The physical and policy recommendations in the previous two chapters provide the ingredients while the implementation strategy provides a guide for action. This chapter contains project prioritization and phasing, opportunities and strategies, key action steps, an evaluation and monitoring process, methods for greenway implementation and acquisition, and methods for developing bicycle and pedestrian facilities.

7.2 Prioritization of Projects

The entire integrated system was described in Chapter 4. However, the system will likely be developed incrementally. This section describes how the recommended facilities in the greenway, bicycle, and pedestrian network are prioritized. Projects were prioritized by the facility segment's ability to provide connectivity, serve underserved areas, and improve safety in areas of concern. Routes suggested in previous planning efforts and by heavy public recommendation were also given higher priority. Higher priorities were also assigned where opportunity existed, such as future roadway construction or reconstruction, or easements with high potential in need of protection that are threatened with development pressure.

Greenways, bicycle facilities, and pedestrian facilities have been divided into three phases. The short term phase is 0-7 years; medium term phase is 7-15 years; long term phase is 15-25 years. A list of top priority action items has been pulled out of the first phase segments. Development efforts should occur within 0-3 years for these top priority, early-action items. These projects are specific improvements that will facilitate an immediate increase in connectivity, access, safety, and promotion of the network. Phasing for all greenway, bicycle, and pedestrian facilities in the Urban Area network are shown on the Phasing Maps (Maps 7.1, 7.2, and 7.3).

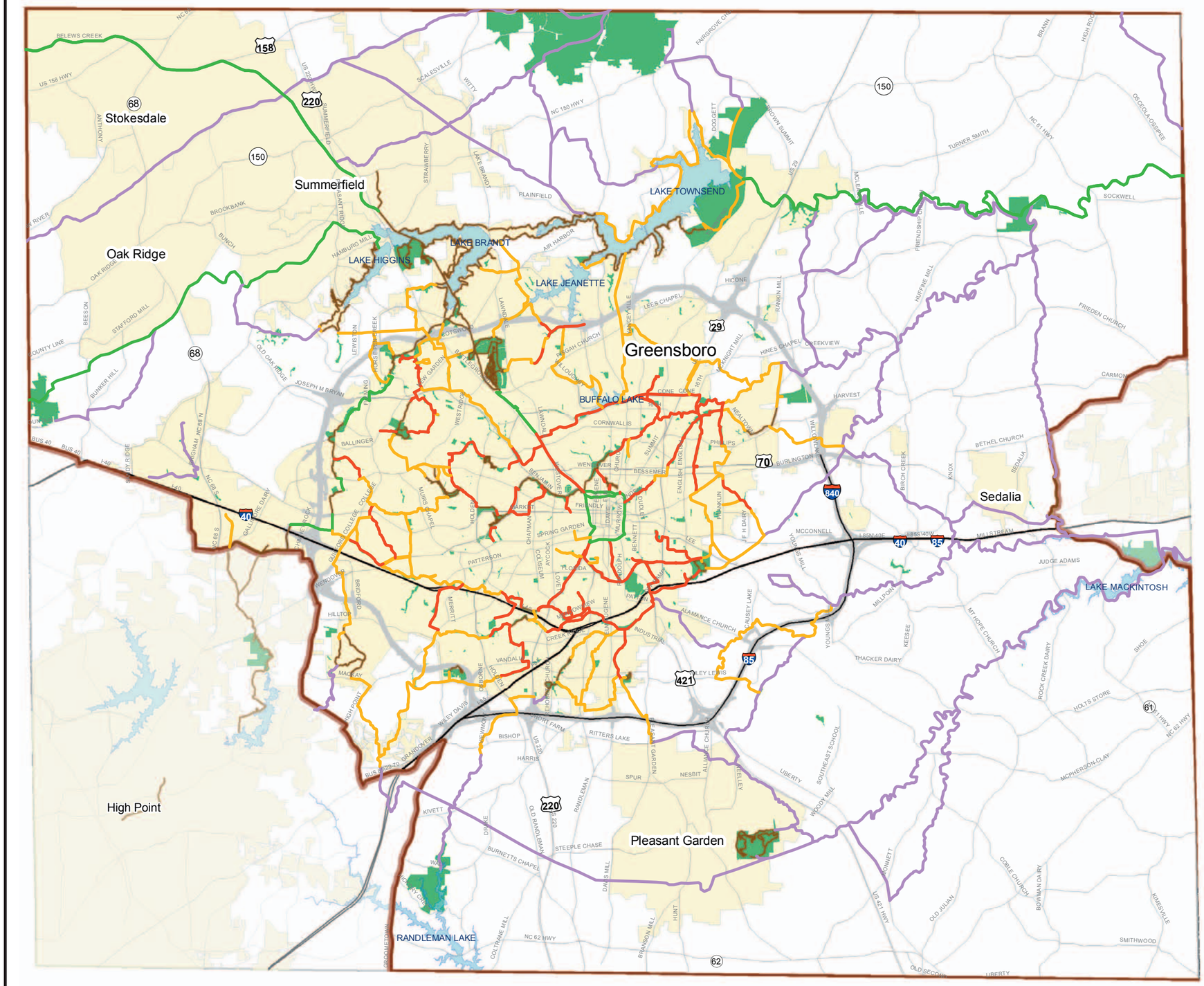
7.2.1 Top Priority Projects

A portion of the recommended greenway, bicycle, and pedestrian improvements are proposed to be implemented within the first three years after the plan is adopted. These recommendations are classified as Top Priority Projects, and will take advantage of some of the most promising opportunities to add non-motorized facilities as a part of upcoming projects. These projects are intended to build community support and momentum for implementing additional recommendations of this Plan.

Top Priority projects are specific improvements that will facilitate an immediate increase in connectivity, access, safety, and promotion of the network. The locations of only these top priority projects are shown on the Top-Priority Projects Map (Map 7.4).

<u>Top Priority Greenways</u>

The Top Priority greenway and greenway spur projects are listed below and cover approximately 26 miles. These were chosen based on their ability to serve underserved populations and where there were opportunities such as existing easements. Other segments given high priority were some of the current City's proposed trails and "Connector routes" that received funding through the 2000 bond referendum. Every "Connector route" that the City has money to complete should be a top priority. As mentioned in Chapter 4, most Connector routes are also part of longer recommended greenways. All top priority



Greensboro Urban Area

Comprehensive Bicycle, Pedestrian, and Greenway Plan

Map 7.1

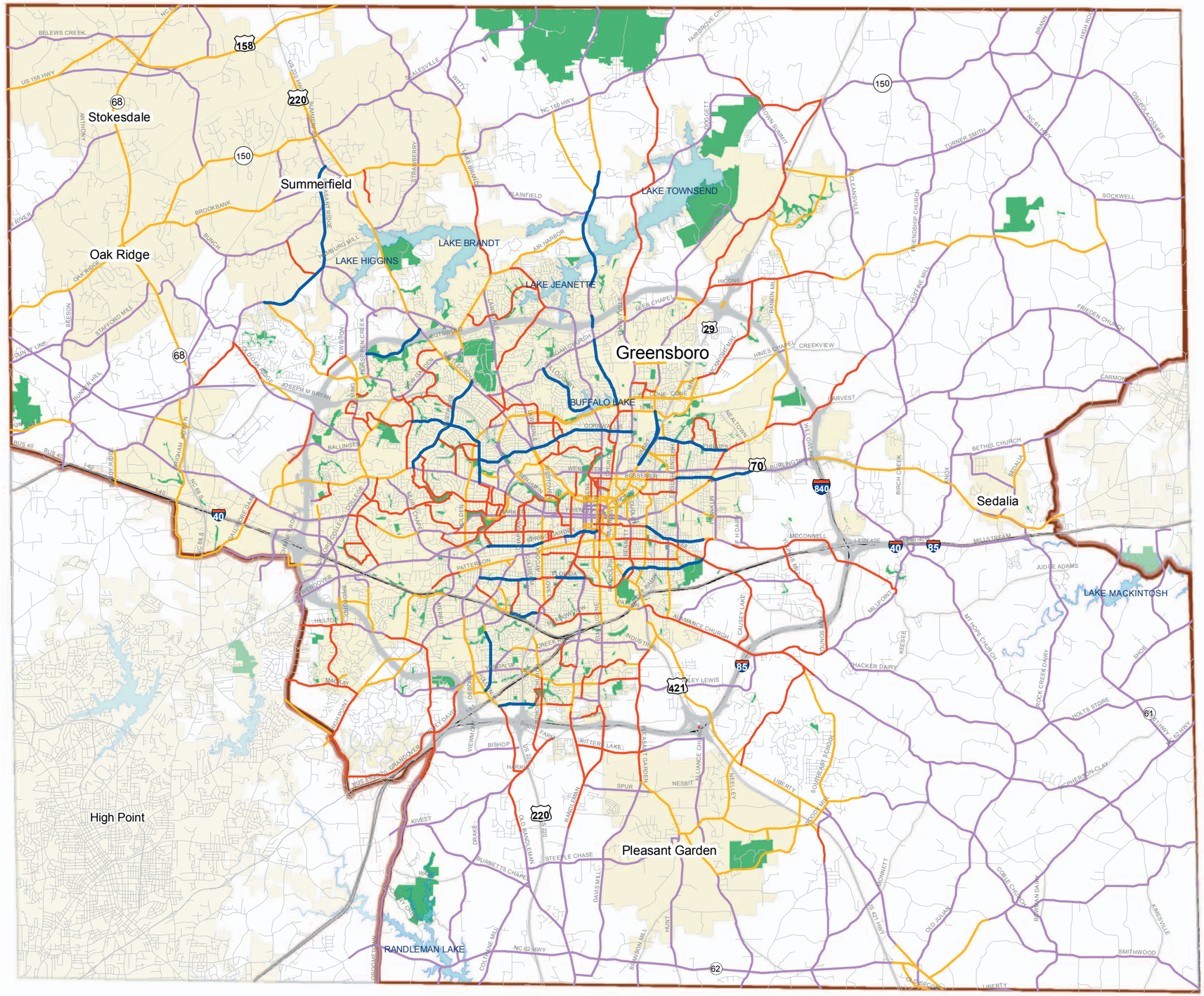
Recommended Greenway Phasing

Legend

- Short Term
- Medium Term
- Long Term
- Ongoing Efforts
- Existing Off-Road Trails
- Urban Loop
- Interstate
- Major Roads
- Parks
- Incorporated
- Greensboro MAB
- Lakes

1 Miles

Data Source: City of Greensboro



Greensboro Urban Area

Comprehensive Bicycle, Pedestrian, and Greenway Plan

Map 7.2

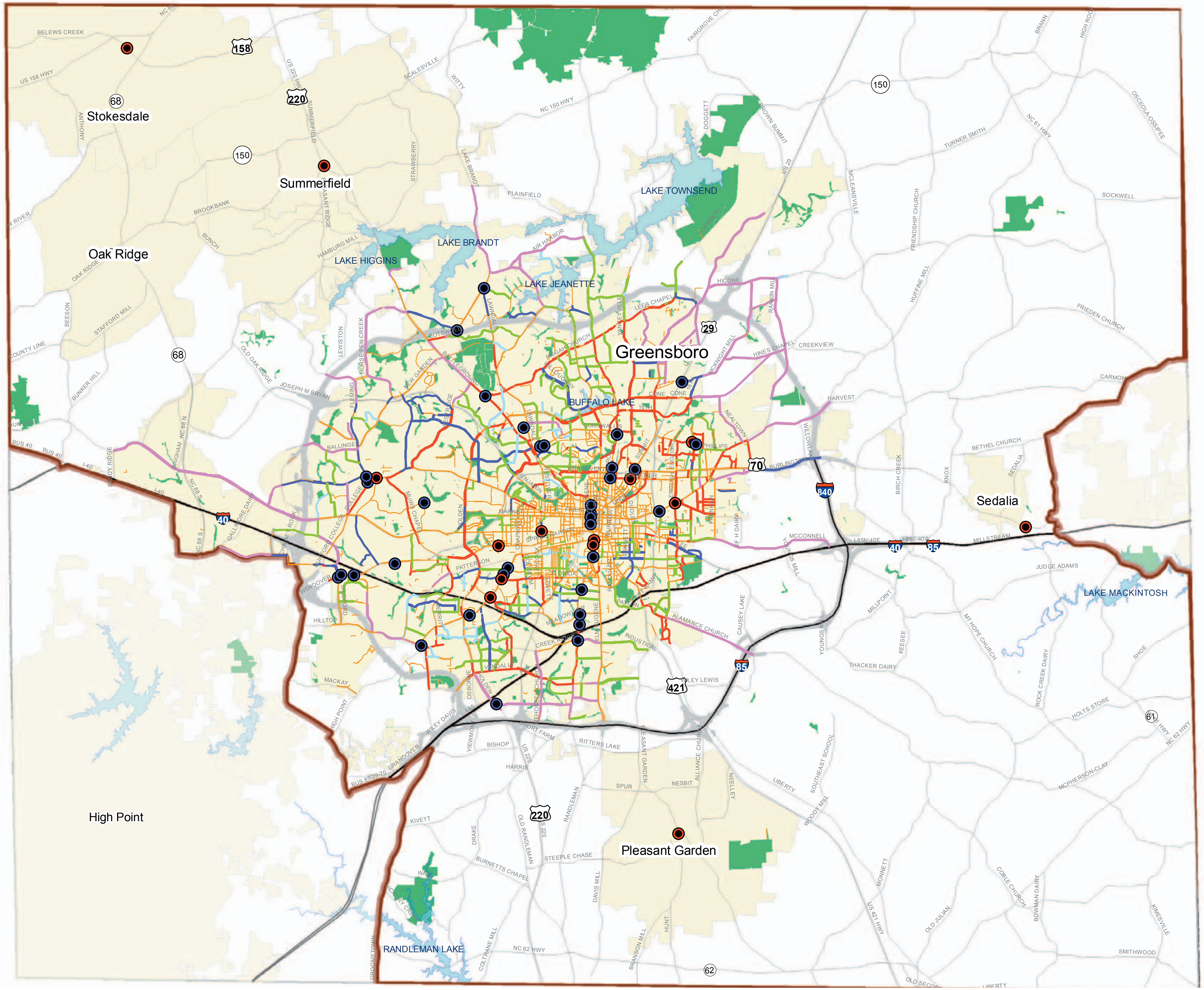
Recommended Bicycle Phasing

Legend

- Top Priority (0-2 years)
- Short Term (0-5 years)
- Medium Term (7-15 years)
- Long Term (15-25 years)
- Roadway (No recommendation)
- Interstate
- Urban Loop
- Parks
- Incorporated
- Greensboro MAB
- Lakes

1 Miles

Data Source: City of Greensboro



Greensboro Urban Area

Comprehensive Bicycle, Pedestrian, and Greenway Plan

Map 7.3

Recommended Pedestrian Phasing

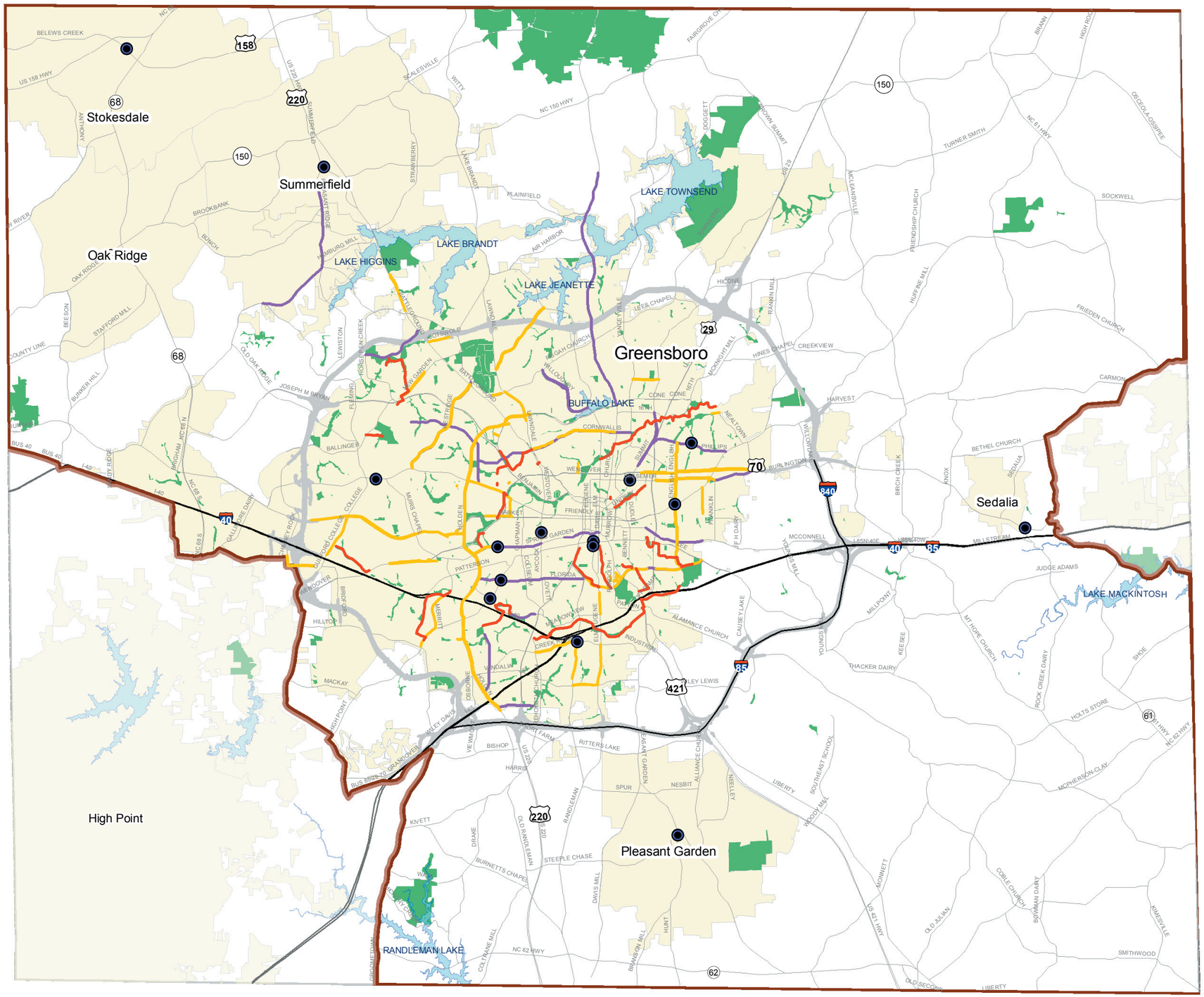
Legend

Ped Xing Phasing
- Short Term
- Long Term

Sidewalk Phasing
- Tier 1
- Tier 2
- Tier 3
- Tier 4
- Roadway Project
- Existing Sidewalk
- Urban Loop
- Parks
- Incorporated
- Greensboro MAB
- Lakes

1
Miles

Data Source: City of Greensboro



Greensboro Urban Area

Comprehensive Bicycle, Pedestrian, and Greenway Plan

Map 7.4

Recommended Top Priority Projects

Legend

- Top Priority Ped Xings
- Top Priority Bicycle Facilities
- Top Priority Greenways
- Top Priority Sidewalks
- Urban Loop
- Interstate
- Parks
- Incorporated
- Greensboro MAB
- Lakes

1 Miles

Data Source: City of Greensboro



greenways are mostly segments, or pieces of the recommended greenways described in Chapter 4. All short-term phased greenway recommendations should be given strong early consideration especially if funding or opportunity becomes readily available.

2000 Bond Referendum Connector Routes

Green Valley Connector (Battleground Ave. and planned Battleground Trail west across Benjamin Parkway to east end of Bog Gardens)

Distance: 1.3 miles
Type: IV & V

Opportunities:
- Mostly within long, linear parcel of common area owned by the Green Valley Office Park Association
- Portion follows drainageway and open space buffer
- Would connect Battleground Rail Trail and Battleground Avenue commercial corridor to Green Valley Office Park
- Would connect Green Valley Office Park westward to Bog Garden utilizing existing sidewalk along Pembroke Road.

Obstacles:
- Crossings of Battleground Avenue and Benjamin Parkway

S. Buffalo Creek Greenway (*Hillsdale Connector Route*, portion in Hillsdale Park, connects existing Hillsdale Greenway to west end of Hillsdale Park at Meadowview Rd)

Distance: 0.6 miles
Type: IV

Opportunities:
- City-owned land (Hillsdale Park) along entire corridor
- Providing neighborhood walking route in park environment

Obstacles:
- Crossing of Vanstory

Vanstory Connector - Hillsdale Park Trail (Hillsdale Park across I-40 to Four Seasons Town Center and Smith Athletic Complex)

Distance: 0.9 miles
Type: V

Opportunities:
- Connectivity from residential, north side of I-40 and Hillsdale Park to the Four Seasons area and Smith High School
- Would utilize stretch of existing sidewalk on Vanstory over I-40

Obstacles:
- Numerous crossings of entrances and exits to Four Seasons Town Center
- Crossing of Vanstory at Pinecroft/Vanstory intersection near Smith Athletic Complex

SE Connector Greenway & Connector Spurs (Sections of SE Connector that are incomplete: Freeman Mill at Bragg and Downtown Loop Trail to Florida/Elm-Eugene; section along Florida St. and Barber Park from English St. to Dans Rd.; spurs)

Distance: 1.6 miles + 1.0 miles of spur
Type: V & IV

Opportunities:
- Easement and open space along Freeman Mill road and Florida St.
- Sussman Street Park



- Barber Park

Obstacles:
- Crossings at Whittington and Ashe; Spur crossing at Benbow
- Sidewalk development in front of residential homes on Florida St. and side roads where spurs are recommended

Lindley Park Connector Segment #1 (Lindley Center Park at Masonic Road north to Walker Avenue and the Lindley Complex Park)

Distance: 0.4 miles
Type: IV & V

Opportunities:
- Existing City-owned parkland (Lindley Center Park)
- Connections to existing connector sidewalk leading to Arboretum

Obstacles:
- Safe crossings needed at Springwood Dr. and Walker Ave.

Lindley Park Connector Segment #2 (Lake Daniel Greenway at Friendly Ave. to Market Street Park and Arboretum)

Distance: 0.7 miles
Type: V

Opportunities:
- Existing sidewalk along Friendly and Green Valley
- Connecting greenway systems and Friendly Shopping Center
- Sidewalk should be widened to 10 feet multi-use where possible

Obstacles:
- Crossings at Green Valley and Market
- Sidewalk along Green Valley in front of residential homes

Grimsley Connector (Existing connector sidewalk along Westover Tr. to Battleground Rail-Trail along Green Valley Rd.)

Distance: 0.05 miles
Type: V

Opportunities:
- Extends existing sidewalk along Westover to connect to Battleground Rail-Trail
- Along north side of Green Valley is City-owned land

Obstacles:
- Crossings of Green Valley and Westover - crossing improvements may be necessary

Bog Garden Connector (Short segment to fill existing sidewalk gap along Pembroke Road between Grandview Avenue and Kathleen Avenue)

Distance: 0.05 miles
Type: V

Opportunities:
- Filling gap in existing sidewalk along Pembroke
- Along entire Connector sidewalk, signage should be produced to guide users to/from Bicentennial Gardens, Bog Gardens, and the Lake Daniel Greenway

Price Park Greenway Extension (Price Park to Carolyn Allen Park/Bicentennial Greenway/Horsepen Creek)

Distance: 1.7 miles
Type: IV, III, & V



Opportunities:
- Follows long green corridor of varying width
- Along drainageway and open space buffer
- Stretches of City-owned parkland
- Stretches follow cleared sewer easements
- Numerous natural spurs into residential areas

Obstacles:
- Potential wet areas north of New Garden Rd.
- Crossings at Jefferson and New Garden
- Crossing of Horsepen Creek

N. Buffalo Creek Greenway (Latham Park Greenway & Elm Street east to City-owned land (Wastewater Treatment Plant, landfill) and recommended Muddy Creek Trail #3). *This alignment provides an alternative the old proposed Keeley Park Connector.*

Distance: 3.8 miles
Type: IV & V

Opportunities:
- Along drainageway and open space buffer
- Stretches of linear parkland
- Briefly follows abandoned railroad
- Connecting multiple uses (Revolution Mills area)
- Connection to Carolina Circle Mall area
- Large tract of City-owned land (Wastewater Treatment Plant and landfill)
- Railroad bridge just east of Church St.
- Existing sidewalk across US29 on 16th Street for Type V stretch

Obstacles:
- Acquisition of mainly commercial and industrial easements
- Crossings of Church, Yanceyville, Summit, US29

2006 Recommended Top Priority Routes (Phase 1a)

These are the higher priorities in the Phase 1 recommended greenways.

S. Buffalo Creek Greenway (Clean Water Management Fund wetlands project near Rehobeth Church Rd. east to Barber Park);

Distance: 4.7 miles
Type: IV & V

Opportunities:
- City-owned land (wetlands project)
- Adequate dry space and clearance at I-40 overpasses
- Along drainageway and open space buffer
- Stretches of linear parkland
- Beautiful railroad bridge
- Existing sidewalk for Type V stretches
- Connectivity to Bluford Park and Barber Park

Obstacles:
- Clearing of brush overgrowth and in one case, large rocks under I-40 overpasses
- Crossings of Randleman, Elm-Eugene, US 421
- Topographic and wet areas near Home Depot, just west of Elm-Eugene

S. Buffalo Creek Greenway (West end of Big Tree Park and Guilford College Road east to Wendover Avenue)

Distance: 1 mile
Type: IV

Opportunities:
- Mostly contained within linear Big Tree Park
- No major roadway crossing
- Along drainageway and open space buffer



Obstacles:
- Commercial, industrial, residential uses at extreme west and east ends

Muddy Creek Greenway (Murrow/Downtown Loop Trail NE to Lindsay Street just north of NCA&T football stadium)

Distance: 0.9 miles
Type: IV & V

Opportunities:
- Portion along drainageway and open space buffer
- 0.6 miles runs through linear stretches of City-owned parkland
- Existing light posts through stretch of woods
- Connects NC A&T to Downtown
- Existing sidewalk along Lindsay St. for Type V stretch

Obstacles:
- Crossings at Murrow, Yanceyville, and Sullivan
- Alignment through Memorial Stadium parking areas

Vance Arlington Greenway - (Bragg St and Downtown Loop Trail to Florida St.)

Distance: 1.1 miles
Type: IV

Opportunities:
- Existing local support and effort behind project
- Follows sewer easement
- Follows Vance and Arlington Parks for about 0.5 mile
- Small patches of City-owned land

Obstacles:
- Crossings at Whittington and other neighborhood streets
- Easement acquisition necessary through residential areas and commercial/industrial areas in the northern half of the greenway

Kernodle Connector (Terrault Dr. in Saddlecreek Subdivision north to Price Park Greenway Extension)

Distance: 0.2 miles
Type: IV

Opportunities:
- Passes entirely through City-owned land and HOA land (Horsepen Meadow and Saddlecreek Park)
- Connects Saddlecreek Subdivision to recommended Price Park Extension Greenway

Price Jefferson Connector (Price Park Greenway westward to Jefferson Elementary and New Garden Road);

Distance: 0.4 miles
Type: IV

Opportunities:
- Passes through City-owned land (Price Park, Jefferson Village, and Robin Ridge open space) and then the southern grounds of Jefferson Elementary
- Connects Jefferson Elementary to Price Park

Obstacles:
- None

Reddicks Creek Greenway (Fairfax and Merritt to High Point Road)

Distance: 1.9 miles
Type: IV & V

Opportunities:
- Existing sidewalk for Type V stretch across I-40 on Merritt



- Follows wide open space on south side of I-40 along Fairfax
- Portion along drainageway and open space buffer
- Follows long stretches of linear parkland and open space
- Stretches follow cleared sewer easements
- Runs through Aldermann Elementary grounds and Pennydale Park

Obstacles:
- Narrow width along Fairfax for about 500 feet just west of Merritt

Gracewood Greenway (Pembroke Road and Green Valley Office Park northward to north end of Guilford Hills Park)

Distance: 0.4 mile
Type: IV

Opportunities:
- Along drainageway and open space buffer
- Runs through City-owned land and Green Valley Office Park
- Large stretch through Guilford Hills Park
- Provides walking path for employees of Green Valley Office Park

Obstacles:
- Crossings at Pembroke Road and Cornwallis Drive

Dudley HS Spur (Windsor Recreation Center at Lee St. to Barber Park at Florida St.)

Distance: 1.5 miles
Type: IV & V

Opportunities:
- Existing underpass at Lee St.
- Connections to Dudley High School, Lincoln Middle School, and Bluford Elementary School
- Portion follows drainageway and open space buffer
- Short stretches of linear parkland
- Existing sidewalk, including Lee St. sidewalk across US 29

Obstacles:
- Roadway crossings at Florida St., Willow Road
- Easement through residential area may be required in back of 5-6 lots just north of Cottage Grove Park and Florida St.

Downtown Loop Spur (Underpass at Murrow/Summit connecting Downtown Loop Trail to Leftwich St.)

Distance: 0.03 miles
Type: V

Opportunities:
- Existing underpass
- Improved access to Downtown for residential areas

Obstacles:
- Clean up and general aesthetic improvement
- Safety and lighting for underpass

Top Priority On-Road Bicycle Facilities

Approximately 40 miles of on-road bicycle facilities are recommended as Top Priority Projects. These Top Priority Projects are listed below, while Map 7.2 depicts the phasing of all of the on-road bicycle recommendations. Top Priority on-road bicycle facilities include:

Bicycle Lanes
- Spring Garden Street (Holden Road to Aycock Street; Mendenhall Street to Greene Street) (***Implemented at time of Plan preparation)***
- Westridge Road (West Friendly Avenue to Battleground Avenue)



- Drawbridge Parkway (Horsepen Creek Road to Battleground Avenue)
- Florida Street (Lexington Avenue to Randleman Road)
  (***Implemented at time of Plan preparation)***
- Cornwallis Drive (Elm Street to Yanceyville Street)
- Willoughby Boulevard (Pisgah Church Road to Elm Street)
- Summit Avenue (Phillips Avenue to 16th Street)
- Burlington Road (Huffine Mill Road to US 70)
- Glendale Drive (Holden Road to Donegal Drive)

Shoulders
- Church Street (Orchard Ridge Lane to Ariel Farm Road)
- Pleasant Ridge Road (Fleming Road to Summerfield Road)

Edgelines
- Hobbs Road (Jefferson Road to West Friendly Avenue)
- Cornwallis Road (Hobbs Road to Elm Street)
- Church Street (Cone Boulevard to Lee's Chapel Road)
- Phillips Avenue (Summit Avenue to Huffine Mill Road)
- Summit Avenue (4th Street to Phillips Avenue)
- Bessemer Avenue (English Street Huffine Mill Road)
- McConnell Road (Benbow Road to Beaumont Avenue)
- Florida Street (Holden Road to Van Wert Street; Martin Luther King, Jr. Drive to Lee Street)
- Meadowview Street (Hardie Street to Front Street)
- Pinecroft Road (Holden Road to Twin Lakes Drive)

Shared Lane Pavement Markings
- Spring Garden Street (Tate Street to Mendenhall Street)

Signed Bicycle Routes
- Spot improvements should be made to eliminate potentially hazardous locations and difficult intersections along all of the short-term signed bicycle routes (see Map 4.5). Once the improvements are made, bicycle route signs should be posted on all of these short-term bicycle routes.

Top Priority Pedestrian Corridors

Sidewalks Under Design (0-2 years)
- West Market Street (Stage Coach Trail to Staunton Drive; Starmount Drive to Elam Avenue)
- College Road (I-40 to Market Street)
- Wendover Avenue (Edwardia Drive to Clifton Road; Homeland Avenue to Penry Road)
- Walker Avenue (Market Street to Holden Road)
- Elam Avenue (Market Street to Friendly Avenue)
- Spring Garden Street (Holden Road to Lindell Road)
- West Friendly Avenue (Muirs Chapel Road to Westridge Road; Holden Road to Elam Avenue)
- Cotswold Avenue (Battleground Avenue to Cotswold Terrace)
- Pisgah Church Road (Pisgah Court to Martinsville Road)
- Lawndale Drive (Pisgah Church Road to Colonial Avenue)
- Cone Boulevard (Battleground Avenue to Elkhart Drive)
- Spry Street (Yanceyville Street to Summit Avenue)
- Cornwallis Drive (Battleground Avenue to Lafayette Avenue; Kirkpatrick Place to Church Street)
- Bessemer Avenue (Tucker Street to Burlington Road)
- Lowdermilk Street (Holts Chapel Road to Market Street)
- Florida Street (Ashe Street to Vance Street;



Randolph Avenue to Marboro Drive; from Hooks Street to Lee Street)
- Vandalia Road (Randleman Road to South Elm-Eugene Street)
- Randleman Road (Creek Ridge Road to Rocky Knoll Road)
- South Holden Road (High Point Road to Vandalia Road)
- Farmington Drive (Wintergreen Lane to Holden Road)
- Holden Road
- Westridge Road
- English Street

Road Related Sidewalks Under Design (0-5 years)
High Point Road (Merritt Drive to Hilltop Road)
Creek Ridge Road (Rehobeth Church Road to Randleman Road)
South Elm-Eugene Street (Terrell Street to Meadowview Road; Industrial Avenue to Vandalia Road)
East Cone Boulevard Extension
Nealtown Road Extension
Merritt Drive (Fairfax Road to High Point Road)
Hornaday Road
New Garden Road (Jefferson Road to Brassfield Road)
Battleground Road (Horsepen Creek Road to Owls Roost Road)
Lake Jeanette Road (Lawndale Drive to Bass Chapel Road)

Near term corridors (2-10 years)

Alamance Church Rd.
Aycock St.
Battleground Ave.
Benjamin Pkwy
Bessemer Ave.
Church St.
Coliseum Blvd.
College Rd.
Cone Blvd.
Cornwallis Dr.
Elm St.
English St.
Florida Ave.
Four Seasons Blvd.
Freeman Mill Blvd.
Friendly Ave.
Green Valley Dr.
Groometown Rd.
Guilford College Rd.
Holden Rd.
Holts Chapel Rd.
Hornaday Rd.
Huffine Mill Rd.
Lawndale Ave.
Lindsay St.
Lovett St.
Lowdermilk St.
Maple St.
Martin Luther King Dr.
McConnell Rd.
Meadowview Rd.
Merritt Rd.
Muirs Chapel Rd.
Norwalk St.
Patterson St.
Phillips Ave.
Pisgah Church/Lees Chapel Rd.
Randleman Rd.
Sixteenth St.
Spring Garden St.
State St.
Summit Ave.
Vandalia Ave.
Wendover Ave.
Westover Terr.
Westridge Rd.



Pedestrian Crossing Improvements

- Spring Garden Street & Howard Street (stripe new crosswalk markings, reconstruct existing curb ramps, provide curb extensions, add high-visibility pedestrian warning signs, add in-roadway pedestrian crossing signs, improve pedestrian lighting, remove sight-distance obstructions)
- West Friendly Avenue & Dolley Madison Road (reconstruct existing curb ramps, install pedestrian countdown signal heads, add high-visibility pedestrian warning signs, improve pedestrian lighting)
- East Market Street & North English Street (stripe new crosswalk markings, construct new curb ramps, install pedestrian countdown signals, restrict right-turn on red, improve pedestrian lighting)
- Phillips Avenue between Bywood Road and Lombardy Street (stripe new crosswalk markings, construct median islands, post high-visibility pedestrian warning signs, improve pedestrian lighting)
- Meadowview Road & High Point Road (restripe existing crosswalk markings, reconstruct existing curb ramps, construct median islands, install pedestrian countdown signal heads, post high-visibility pedestrian warning signs, improve pedestrian lighting)
- Bessemer Avenue & Summit Avenue (restripe existing crosswalk markings, reconstruct existing curb ramps, install pedestrian countdown signal heads, post high-visibility pedestrian warning signs, improve pedestrian lighting)
- Eugene Street & Lee Street (construct median islands, install pedestrian countdown signal heads, restrict right-turn on red, improve pedestrian lighting)
- Eugene Street & Bragg Street (construct new curb ramps, construct median islands, improve pedestrian lighting)
- Walker Avenue & Aycock Street (restripe existing crosswalk markings, reconstruct existing curb ramps, provide leading pedestrian interval, restrict right-turn on red, improve pedestrian lighting)
- High Point Road & Florida Street (restripe existing crosswalk markings, reconstruct existing curb ramps, install pedestrian countdown signal heads, post high-visibility pedestrian warning signs, improve pedestrian lighting)
- Battleground Avenue & Pisgah Church Road (stripe new crosswalks, install pedestrian countdown signal heads, improve pedestrian lighting, remove sight-distance obstructions)
- Wendover Avenue & Stanley Road (stripe new crosswalks, install pedestrian countdown signal heads, improve pedestrian lighting, remove sight-distance obstructions)

It will also be important to make short-term improvements in the communities outside of the City of Greensboro. During the first two years after the plan is adopted, the Greensboro MPO should work with Oak Ridge, Pleasant Garden, Sedalia, Stokesdale, and Summerfield to select specific recommendations from this plan that can be implemented in a short timeframe.

7.3 Opportunities and Strategies

The Greensboro Urban Area has several opportunities that can help propel implementation. First is the **grassroots interest among citizens and local groups** such as BIG (Bicycling in Greensboro). Active citizens turned out to public meetings and local community focus groups throughout this planning process. All showed interest in forming committees and working with communities across the Urban Area to follow progress, stay active, and promote the comprehensive off-road and on-road system to decision-makers and fellow citizens. The organization of all interested citizens will help advocate the network development,



promote awareness, develop local education and encouragement programs, and stimulate volunteer efforts.

A second opportunity is taking advantage of **existing greenways, sidewalks, and trip attractors**. Colleges, parks, the Watershed area, shopping centers, etc. are all places people are interested in walking and/or biking to. Short connections between existing greenways or trip attractors can lead to further connections, forming longer corridors that provide for both transportation and recreation. Also, the addition of bicycle racks, lockers, trailheads, and signage will make these destinations more attractive and visible.

A third opportunity is to take advantage of the **region's substantial growth**. Engineering and design of new roads and developments should follow recommendations and design guidelines from this Plan to develop both on-road and off-road facilities. Also, where roadway reconstruction projects occur, bicycle and pedestrian facilities should be incorporated to reduce the overall cost of the system.

A fourth opportunity exists in the **numerous departments and agencies** that are involved in the creation of this Plan. An **inter-departmental coordinating committee** should be formed to directly coordinate the implementation of this Plan. This would function to continue communication between City of Greensboro Parks and Recreation and the Greensboro Department of Transportation (GDOT) to ensure the integration of the greenway, bicycle, and pedestrian network. While the oversight, implementation, development, and maintenance of both the greenway system (Parks and Recreation) and on-road bicycle/pedestrian system (GDOT) are large, unique, and handled separately and internally, there is a need to coordinate to ensure information-sharing and the proper integration and promotion of the network as a whole.

This inter-departmental coordinating committee will also oversee the implementation of this plan, look for funding resources and opportunities, provide oversight/coordination/leadership for the overall network, develop programs, be a source for information and idea exchange, establish performance measures, listen to the community's needs and requests, update the Plan as necessary, and continue to build momentum for the overall network. The coordinating committee will also be responsible for integrating off-road and on-road facilities, and sharing updated GIS data for greenway, bicycle, and pedestrian facilities. A final task is to remain connected and integrated with surrounding counties and regional bicycle, pedestrian, and greenway systems. This committee should meet four times annually and include staff from:

- City of Greensboro Parks and Recreation
- Greensboro MPO
- GDOT
- City of Greensboro Planning Department
- City of Greensboro Management Information Systems (MIS)
- Guilford County Planning and Community & Economic Development Departments
- NCDOT
- Piedmont Triad Council of Governments

7.4 Action Steps

These action steps may occur simultaneously and address the integration of physical and policy improvements. The key steps are:

1) **Adopt this Plan**. This should be considered the first step in implementation for the local government. Through adoption of this document, the community is able to shape regional decisions so that they fit with the goals and recommendations of this Plan.



2) **Form the Committee** described in above section to oversee implementation and integration of bicycle, pedestrian, and greenway network.

3) **Secure and commit funding** necessary to undertake the short term, top priority projects and develop a long term funding strategy to allow continued development and maintenance of the overall system. Explore alternate funding sources from federal, state, and local sources and means.

4) **Begin working on the top priority projects** listed and described in section 7.2. This will build momentum and focus attention on high priority areas.

5) **Begin acquiring land and easements** necessary to complete priority greenway segments and provide connections between systems where there are gaps.

6) Ensure that **greenway, bicycle, and pedestrian planning is integrated with other transportation planning and funding efforts** at the state and local level, taking advantage of all future paving, construction, and reconstruction projects, as well as with long range and current land use, economic development, parks and recreation, environmental, and community planning, especially the new City of Greensboro Land Development Ordinance (LDO).

7) **Facilitate development of local citizen committees and groups** to advocate the Plan, build support, promote awareness, and develop local education and encouragement programs. These committees would also provide feedback to GDOT and Parks and Recreation staff about the implementation of the Plan.

These efforts would include:
- Active citizens (appointed to represent geographic regions of Greensboro Urban Area)
- Other important representatives of such groups as BIG (Bicycling in Greensboro) and Friends of the Parks (or Friends of the Greenway)

8) **Organize quarterly or semi-annual forums for citizens** to raise pedestrian, bicycle, and greenway issues to GDOT and Parks and Recreation staff. These forums should be supplemented by online feedback forms.

9) **Develop and implement education, encouragement, and awareness programs** such as public events, which can be used to announce new bike routes and upcoming projects and be a source of revenue.

An action schedule (Table 7(a)) outlines more specifically the implementation steps for the Greensboro Bicycle, Pedestrian and Greenway Plan. It lists recommendations in the order presented in this Plan. It is intended as an initial guide but should be reviewed and updated as part of an evaluation and monitoring process described below.

7.5 Establishing Performance Measures (Evaluation and Monitoring)

The Greensboro MPO and City of Greensboro should work with local communities and advocacy organizations to establish performance measures to benchmark progress towards achieving the goals of this Plan. These performance measures should be stated in an official report within one to two years after the Plan is adopted. This report should discuss opportunities that are created through performance measures, such as the ability to track trends in pedestrian and bicycle use and safety over time, present accurate information on pedestrian and bicycle facility use to policy makers, cite accurate inventories of the quantity and quality of facilities during planning and

Chapter		Recommendations	Lead Department/ Agency	Implementation Schedule: Short-term 2006-2013 / Medium-term 2014-2021 / Long-term 2022-2031
4	Greenway	Develop 400 mile greenway system	Parks and Rec Trails Division	
		Investigate and further evaluate alignment, design, and land ownership information for recommended greenway,	Parks and Rec Trails Division	
		Work with local communities and multiple agencies to facilitate greenway development, especially Type V greenway facilities	Parks and Rec Trails Division, GDOT, NCDOT, MPO	
	Bicycle	Develop 900 Mile bicycle system	GDOT	
		Evaluate further corridors that have been defined as needing "further study."	GDOT	
		Build facilities when opportunity exists such as road re-construction, repaving, restriping, etc.	GDOT	
		Establish Bicycle Route system	MPO, NCDOT, GDOT	
		Develop ancillary facilities to compliment network	MPO, NCDOT, GDOT	
	Pedestrian	Develop 362 Mile pedestrian sidewalk system	GDOT	
		Begin treatments/improvements to 47 identified pedestrian crossing improvement sites	GDOT	
		Establish "Main Street Retrofit" Program in Guilford County	GDOT	
		Ensure integration of bicycle, pedestrian, and greenway network development (through Committee recommended in Implementation action step)	Parks and Rec Trails Division, GDOT, NCDOT, MPO	
		Further evaluate Type V greenway corridors for proper bicycle and/or pedestrian facility	Parks and Rec Trails Division, GDOT, NCDOT, MPO	
5		Establish and improve existing programs	MPO, Parks and Recreation	
		Program greenways for revenue generation	Parks and Recreation	
		Revise Guilford County ordinance as recommended	Guilford County & municipalities	
		Revise City of Greensboro UDO (as part of LDO rewrite)	City of Greensboro, Parks and Recreation, MPO	
		Update street design standards (as they are being updated by the City of Greensboro)	GDOT	
		Strengthen, support, and integrate City of Greensboro Sidewalk Policy into the LDO rewrite	GDOT	
		Make NCDOT lane and shoulder width policy more bike/ped flexible within Greensboro MPO	GDOT	
		Strengthen policies to acquire greenway corridors	Parks and Recreation	

Greensboro Urban Area

Comprehensive Bicycle, Pedestrian, and Greenway Plan

Table 7(a)

Action Steps for Implementation

Chapter	Recommendations	Lead Department/ Agency	Implementation Schedule: Short-term 2006-2013 / Medium-term 2014-2021 / Long-term 2022-2031
6	Expand routine and remedial operational tasks to reflect recommendations found in Chapter 6	Parks and Recreation, MPO	Short-term 2006-2013
	Expand routine and remedial maintenance tasks to reflect recommendations found in Chapter 6	Parks and Recreation, MPO	Short-term 2006-2013
	Create an Inter-Departmental Committee	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013
	Develop non-profit group or coalition for greenways (Friends of the Parks & Trails)	Parks and Recreation	Short-term 2006-2013
	Create a new assistant trails director position to assist with programming, grants, and GIS.	Parks and Recreation	Short-term 2006-2013
	Hire and train new greenway maintenance personnel, as needed (1 person for every 16 miles of greenway maintained)	Parks and Recreation	Short-term 2006-2013; Medium-term 2014-2021; Long-term 2022-2031
	Create Bicycle Coordinator Position	MPO, GDOT	Short-term 2006-2013
	Create Pedestrian Coordinator Position	MPO, GDOT	Short-term 2006-2013
	Seek alternative to finance and establish a sustainable funding pool	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021; Long-term 2022-2031
7	Adopt the Plan	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013
	Begin work on top Priority Projects	GDOT, Parks and Recreation, MPO, active citizens	Short-term 2006-2013
	Form the Inter-Departmental Committee	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013
	Secure/Committ Funding	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021; Long-term 2022-2031
	Acquisition for land/easements for greenways	Parks and Rec Trails Division	Short-term 2006-2013; Medium-term 2014-2021; Long-term 2022-2031
	Bicycle, Pedestrian, and greenway planning integrated with transportation planning	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021
	Facilitate development of local citizen committees and groups	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021
	Organize quarterly forums for citizens	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021
	Develop education, encouragement, and awareness programs to build momentum	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021
	Establish performance measures	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021
	Evaluate and monitor bicycle, pedestrian, and greenway network facilities	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021; Long-term 2022-2031
	Explore alternative funding sources (Appendix D)	Parks and Rec Trails Division, GDOT, NCDOT, MPO	Short-term 2006-2013; Medium-term 2014-2021; Long-term 2022-2031

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Table 7(a)

Action Steps for Implementation



analysis tasks, and understand the characteristics and needs of pedestrians and bicyclists in the community. The report should also discuss challenges, such as the cost of data collection and reporting, accuracy of data, and how to establish realistic performance targets for pedestrian and bicycle improvements.

Baseline data should be collected as soon as the performance measures are established. The performance measures can address the following aspects of pedestrian and bicycle transportation and recreation in the Greensboro area:

- Safety. Measures of pedestrian and bicycle crashes or injuries.
- Usage. Measures of how many people are bicycling and walking on on-road and off-road facilities.
- Facilities. Measures of how many pedestrian and bicycle facilities are available and the quality of these facilities.
- Education/Enforcement. Measures of the number of people educated or number of people ticketed as a part of a bicycle and pedestrian safety campaign.
- Institutionalization. Measures of the total budget spent on bicycle, pedestrian, and greenway projects and programs or the number of municipal employees receiving bicycle facility design training.
- Cost. Measures of the total cost of pedestrian and bicycle facilities per mile or per user.

When establishing performance measures, the MPO should consider utilizing data that can be collected cost-effectively and be reported at regular intervals, such as in a performance measures report that is published every two to three years. As the process of collecting and reporting pedestrian, bicycle, and greenway data is repeated over time, it will become more efficient.

It will also be a responsibility of the Interdepartmental Coordinating Committee (see Section 7.3) to evaluate and monitor the existing and recommended network over the next 25 years. The Committee should review process and progress and evolve and adapt as needed. Land use, transportation, development, and the overall landscape will continue to change as Greensboro grows, resulting in a dynamic Urban Area. Also, new opportunities or input from an on-going monitoring and evaluation process may emerge, leading to the need to adapt and update the recommendations of this Plan.

7.6 Implementation of Greenway Network

A number of methods should be pursued for the overall implementation, acquisition, development, management, and maintenance of the greenway network. Many of these methods relating to management and maintenance are detailed in Chapter 6. Alternate funding sources for actual greenway development can be found in Appendix D. Acquisition tools are described here.

Because the majority of greenways exist in an off-road environment, the acquisition of land or easements becomes a critical part of the implementation process. The recommended alignment of greenways in this Plan follows publicly-owned land where possible, but in most cases, an acquisition strategy will have to be implemented in areas of privately-owned land.

There are several resources and strategies that can aid in the acquisition process. Greensboro's Drainageway and Open Space ordinance can be used as a means to acquire access rights for greenways upon new development. Enlisting the support of a local land trust could help broker land protection arrangements between private landowners and the City of Greensboro. Providing educational material to local landowners and developers about the benefits



of greenways and land/easement donations is also an excellent means to stimulate greenway acquisition.

The following sections detail a list of specific strategies, including the formation of partnerships and a toolbox of acquisition options.

7.6.1 Partnerships

The City of Greensboro should pursue partnerships with land trusts and land managers to make more effective use of its land acquisition funds and strategies. The following offers recommendations on how these partnerships could be strengthened

Land Trusts

Land trust organizations, such as the Piedmont Land Conservancy and the Trust for Public Lands, to name just two, are valuable partners for the City of Greensboro and Guilford County, when it comes to acquiring land and rights-of-way for greenways. These groups can work directly with landowners and conduct their business in private so that sensitive land transactions are handled in an appropriate manner. Once the transaction has occurred, the land trust will usually convey the acquired land or easement to a public agency, such as the City or County for permanent stewardship and ownership.

One possible partnership activity would be to assist Guilford County with the acquisition that would be associated with the November 2004 bond referendum that provided $10 million to help preserve natural areas throughout the County. Land trusts could work specifically with both the Open Space Committee and County staff to evaluate and recommend potential acquisitions using adopted criteria and priorities.

Private Land Managers

Another possible partnership that could be strengthened would be with the utility companies that manage land throughout the Greensboro Urban Area and in Guilford County. Some trails and greenways have already been built on rights-of-way that are either owned or leased by electric and natural gas companies, including the Bicentennial Greenway.

Electric utility companies have long recognized the value of partnering with local communities, non-profit trail organizations and private land owners to permit their rights-of-way to be used for trail development. This has occurred all over the United States and throughout North Carolina. In 1987, a special report was prepared and published jointly by American Trails, Inc. and the Edison Electric Institute, entitled, *Trails on Electric Utility Lands: A Model of Public-Private Partnership*. The report features examples where trails and electric utility companies share the right-of-way. Some of the trails included in the report are the Calumet Trail, Foothills Trail, Illinois Prairie Path, Interurban Trail and Puget Power, Redmond Trail, Mason Dixon Trail and the Washington and Old Dominion Trail.

Natural gas companies, whose pipelines traverse the United States, have also allowed their rights-of-way to be used for trail development. This cooperative spirit may have been modified a bit since the events of September 11, 2001, however, there are plenty of examples throughout North Carolina and the nation where shared rights-of-way exist. Again, a publication entitled *"Greenways, Wildlife and Natural Gas Pipeline Corridors: New Partnerships for Multiple Use,"* written by Keith G. Hay, and published in 1994 by the Conservation Fund, Arlington, VA, chronicles the success of this partnership. Some key excerpts from the book:

- Although 82% of the [gas transmission companies] companies reported that they had never had a liability suit filed by a recreational user of a ROW (right-of-way) corridor, concern



over expensive lawsuits prevails. Each of the 13 companies that reported a liability suit were contacted to determine the nature of the liability action. In every lawsuit filed except one (a logging accident crossing a Right-of-Way (ROW)), the plaintiff was driving either an ATV or a snowmobile on the ROW. All ATV drivers were trespassing.

- Potential partnerships with public groups should be viewed very positively and companies should be prepared to do some grassroots legwork with these groups. Many companies have found such efforts have paid off in facilitating the issuance of permits and increasing public support for projects. Such initiatives are highly recommended.

- Potential public interest partners have well-developed avenues for publicizing their cooperative ventures with utilities. Companies would be well advised to take advantage of these opportunities to promote the positive aspects of these associations.

- Benefits to the utility. Eastern Trail shares its corridor with the following utility companies: Granite State Gas Transmission Company, Northern Utilities Natural Gas, Central Maine Power, Verizon and Biddeford, Scarborough Sanitation District and Saco Water Company.

- "Partnerships on greenways like the Eastern Trail provide utility companies with an uninterrupted, easily accessible, stretch of land that is relatively free from disturbance. The safe and efficient operation of utilities can be enhanced by the protective eyes and ears of trail users and advocates, who can report improper trail use and other situations that involve utility equipment."

Part of the Colonial Pipeline right-of-way that extends through Guilford County is currently used for the Bicentennial Greenway.

Greensboro and Guilford County should actively update and maintain relationships with private utility and land managers to ensure that the community-wide bicycle, pedestrian, and greenway system can be accommodated within these rights-of-way. The city and county will need to demonstrate to these companies that maintenance will be addressed, liability will be reduced and minimized and access to utility needs will be provided.

7.6.2 Greenway Acquisition Tools

The following menu of tools describe various methods of acquisition that can be used by landowners, land conservation organizations, and the City of Greensboro to acquire greenway lands.

Land Management

Management is a method of conserving the resources of a specific greenway parcel by an established set of policies called management plans for city-owned greenway land or through easements with private property owners. Property owners who grant easements retain all rights to the property except those which have been described in the terms of the easement. The property owner is responsible for all taxes associated with the property, less the value of the easement granted. Easements are generally restricted to certain portions of the property, although in some cases an easement can be applied to an entire parcel of land. Easements are transferable through title transactions, thus the easement remains in effect perpetually.



Management Plans: The purpose of a management plan is to establish legally binding contracts which define the specific use, treatment, and protection for city-owned greenway lands. Management plans should identify valuable resources; determine compatible uses for the parcel; determine administrative needs of the parcel, such as maintenance, security, and funding requirements; and recommend short-term and long-term action plans for the treatment and protection of greenway lands.

Conservation Easement: This type of easement generally establishes permanent limits on the use and development of land to protect the natural resources of that land. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Dedicated conservation easements can qualify for both federal income tax deductions and state tax credits. Tax deductions are allowed by the Federal government for donations of certain conservation easements. The donation may reduce the donor's taxable income.

Preservation Easement: This type of easement is intended to protect the historical integrity of a structure or important elements in the landscape by sound management practices. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Preservation easements may qualify for the same federal income tax deductions and state tax credits as conservation easements.

Public Access Easements: This type of easement grants public access to a specific parcel of property when a conservation or preservation easement is not necessary. The conditions of use are defined in the terms of the public access easement.

Government Regulation

Regulation is defined as the government's ability to control the use and development of land through legislative powers. The following types of development ordinances are regulatory tools that can meet the challenges of projected suburban growth and development as well as conserve and protect greenway resources.

Dedication/Density Transfers: Also known as incentive zoning, this mechanism allows greenways to be dedicated for density transfers on development of a property. The potential for improving or subdividing part or all of a parcel of property, as permitted under Greensboro's or Guilford County's land use development laws, can be expressed in dwelling unit equivalents or other measures of development density or intensity. Known as density transfers, these dwelling unit equivalents may be relocated to other portions of the same parcel or to contiguous land that is part of a common development plan. Dedicated density transfers can also be conveyed to subsequent holders if properly noted as transfer deeds.

Negotiated Dedications: This type of mechanism allows the City to negotiate with landowners for certain parcels of land that are deemed beneficial to the protection and preservation of specific stream corridors. This type of mechanism can also be exercised through dedication of greenway lands when a parcel is subdivided. Such dedications would be proportionate to the relationship between the impact of the subdivision on community services and the percentage of land required for dedication-as defined by the US Supreme Court in Dolan v Tigard.

Fee-in-Lieu: To complement negotiated dedications, a fee-in-lieu program may be necessary to serve as a funding source for other land acquisition pursuits. Based on the density of development, this program



allows a developer the alternative of paying money for the development/protection of greenways in lieu of dedicating greenway lands. This money is then used to implement greenway management programs or acquire additional greenway land.

Reservation of Land: This type of mechanism does not involve any transfer of property rights but simply constitutes an obligation to keep property free from development for a stated period of time. Reservations are normally subject to a specified period of time, such as 6 or 12 months. At the end of this period, if an agreement has not already been reached to transfer certain property rights, the reservation expires.

Buffer / Transition Zones: This mechanism recognizes the problem of reconciling different, potentially incompatible land uses by preserving greenways that function as buffers or transition zones. Care must be taken to ensure that the use of this mechanism is reasonable and will not destroy the value of a property.

Overlay Zones: An overlay zone and its regulations are established in addition to the zoning classification and regulations already in place.

Subdivision Exactions: An exaction is a condition of development approval that requires developers to provide or contribute to the financing of public facilities at their own expense. For example, a developer may be required to build a greenway on-site as a condition of developing a certain number of units because the development will create the need for new parks or will harm existing parks due to overuse. This mechanism can be used to protect or preserve greenway lands, which are then donated to either the City or County. Consideration should be given to include greenway development in future extraction programs.

Acquisition

Acquisition requires land to be donated or purchased by a government body, public agency, greenway manager, or qualified conservation organization.

Donation or Tax Incentives: In this type of acquisition, a government body, public agency, or qualified conservation organization agrees to receive the full title or a conservation easement to a parcel of land at no cost or at a "bargain sale" rate. The donor is then eligible to receive a federal tax deduction of up to 30 to 50 percent of their adjusted gross income. Additionally, North Carolina offers a tax credit of up to 25 percent of the property's fair market value (up to $5000). Any portion of the fair market value not used for tax credits may be deducted as a charitable contribution. Also, property owners may be able to avoid any inheritance taxes, capital gains taxes, and recurring property taxes.

Fee Simple Purchase: This is a common method of acquisition where a local government agency or private greenway manager purchases property outright. Fee simple ownership conveys full title to the land and the entire "bundle" of property rights including the right to possess land, to exclude others, to use land, and to alienate or sell land.

Easement Purchase: This type of acquisition is the fee simple purchase of an easement. Full title to the land is not purchased, only those rights granted in the easement agreement. Therefore the easement purchase price is less than the full title value.

Purchase / Lease Back: A local government agency or private greenway organization can purchase a piece of land and then lease it back to the seller for a specified period of time. This lease may contain restrictions regarding the development and use of the property.



Bargain Sale: A property owner can sell property at a price less than the appraised fair market value of the land. Sometimes the seller can derive the same benefits as if the property were donated. Bargain Sale is attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has a fairly high current income and could benefit from the donation of the property as an income tax deduction.

Option / Right of First Refusal: A local government agency or private organization establishes an agreement with a public agency or private property owner to provide the right of first refusal on a parcel of land that is scheduled to be sold. This form of agreement can be used in conjunction with other techniques, such as an easement to protect the land in the short-term. An option would provide the agency with sufficient time to obtain capital to purchase the property or successfully negotiate some other means of conserving the greenway resource.

Purchase of Development Rights: A voluntary purchase of development rights involves purchasing the development rights from a private property owner at a fair market value. The landowner retains all ownership rights under current use, but exchanges the rights to develop the property for cash payment.

Condemnation: The practice of condemning private land for use as a greenway is viewed as a last resort policy. Using condemnation to acquire property or property rights can be avoided if private and public support for the greenway program is present. Condemnation is seldom used for the purpose of dealing with an unwilling property owner. In most cases, condemnation has been exercised when there has been an absentee property ownership, when the title of the property is not clear, or when it becomes apparent that obtaining the consent for purchase would be difficult because there are numerous heirs located in other parts of the United States or different countries.

Eminent Domain: The right of exercising eminent domain should be done so with caution by the community and only if the following conditions exist: 1) the property is valued by the community as an environmentally sensitive parcel of land, significant natural resource, or critical parcel of land, and as such has been defined by the community as irreplaceable property; 2) written scientific justification for the community's claim about the property's value has been prepared and offered to the property owner; 3) all efforts to negotiate with the property owner for the management, regulation, and acquisition of the property have been exhausted and that the property owner has been given reasonable and fair offers of compensation and has rejected all offers; and 4) due to the ownership of the property, the timeframe for negotiating the acquisition of the property will be unreasonable, and in the interest of pursuing a cost effective method for acquiring the property, the community has deemed it necessary to exercise eminent domain.

7.7 Bicycle and Pedestrian Facility Development

This section describes types of transportation facility construction and maintenance projects that can be used to create new bicycle and pedestrian facilities. Note that roadway and transit construction and re-construction projects offer excellent opportunities to incorporate facility improvements for non-motorized modes. It is much more cost-effective to provide bicycle and pedestrian facilities along with these projects than to initiate the improvements later as "retrofit" projects.



Roadway Design Guidelines

Roadway design guidelines are important policy documents because they describe the types of facilities that should be provided during construction and reconstruction projects. Roadway design guidelines should include accommodations for all modes of transportation in roadway corridors, including transit, automobile, bicycle, and pedestrian transportation. Pedestrian and bicycle accommodations should be incorporated into the forthcoming edition of the City of Greensboro Roadway Design Guidelines document, and should continue to be incorporated into all future updates. These guidelines should specify requirements for new pedestrian and bicycle accommodations, such as sidewalks on both sides of all roadways (with the exception of short cul-de-sacs and dead-end streets), pedestrian signal heads and crosswalks at all signalized intersections in urban and suburban areas, and bicycle lanes on all collector and arterial streets. Field construction teams must pay close attention to detail in order to provide the high quality pedestrian and bicycle facilities recommended in this plan.

Other Opportunities for Integrating Pedestrian and Bicycle Accommodations

The City of Greensboro, surrounding communities, and NCDOT should also take advantage of several other types of opportunities to incorporate bicycle facilities into routine transportation projects. These opportunities are to ensure that pedestrian and bicycle facilities are listed as a part of projects in the Transportation Improvement Program (TIP), repaving schedules, and other lists of upcoming projects. The types of projects listed below are particularly good opportunities to incorporate bicycle accommodations.

Restriping

Restriping projects include adding bicycle lanes, edgelines, or shoulder stripes to streets without making any other changes to the roadway. In the Greensboro Urban area, opportunities for this type of improvement are found on many neighborhood collector streets within urban areas that are between 30 and 50 feet wide from curb to curb. Roadways of this width that have on-street parking should generally be striped with edgelines, while roadways of this width that do not have on-street parking should be striped with bicycle lanes.

Figure 7(a). Restriping in Washington D.C.

In some locations where the existing lanes are 12 or 13 feet wide, they can be narrowed to 10 feet to provide space for bicycle facilities (where appropriate, given traffic conditions). This requires changing the configuration of the roadway during a resurfacing project (see below).

Repaving

Repaving projects provide a clean slate for revising pavement markings. Crosswalks and accessible curb ramps should be added for pedestrians. Further, when a road is repaved, the roadway should be restriped to create narrower lanes and provide space for bike lanes and shoulders (the City should narrow travel lanes to a minimum 10-foot width, depending on traffic speeds



and composition). In addition, if the space on the sides of the roadway has a relatively level grade and few obstructions, the total pavement width can be widened to include paved shoulders. There are many rural roadways in the Greensboro Urban Area where this type of improvement can be made.

Roadway Construction and Reconstruction

Pedestrians and bicycles should be accommodated any time a new road is constructed or an existing road is reconstructed. All new roads besides short cul-de-sacs, dead-end streets, and roadways in rural areas (e.g., less than one dwelling unit per 6 acres) should be constructed with sidewalks on both sides. Reconstructed roadways with moderate to heavy motor vehicle traffic should have on-road bike facilities (bike lanes or paved shoulders); some may warrant both on-road and off-road facilities (shared-use paths) so that all types of bicyclists can be accommodated comfortably. Roadways in the City of Greensboro should be designed according to the City's revised roadway design guidelines (see Appendix C).

Figure 7(b). Roadway reconstruction, here on Hilltop Road, provides an opportunity for adding bicycle facilities.

Bridge Replacement

All new or replacement bridges should accommodate bicycles with bicycle lanes on both sides of the bridge. If the bridge is in a developed area or an area that may experience development in the future, it should also have wide sidewalks on both sides to accommodate all types of bicyclists and pedestrians.

The current Federal law for pedestrian and bicycle accommodation on bridges was established in the Transportation Equity Act for the 21st Century (TEA-21) and re-affirmed by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). This law states:

"In any case where a highway bridge deck is being replaced or rehabilitated with Federal financial participation, and bicyclists are permitted on facilities at or near each end of such bridge, and the safe accommodation of bicyclists can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations." (23 U.S.C. Section 217)

On urban and suburban bridge projects, bridge shoulders should be a minimum of 5.5 feet wide and sidewalks should be a minimum of 5.5 feet wide if traffic volumes are projected to be less than 15,000 vehicles per day. If traffic volumes are projected to be 15,000 or more vehicles per day, the shoulders should be at least 6.5 feet wide and sidewalks should be at least 7 feet wide.

Bridge replacement projects on controlled access freeways where pedestrians and bicyclists are prohibited by law will generally not include facilities to accommodate bicyclists and pedestrians. In cases, however, where a bridge replacement project on a controlled access freeway impacts a non-controlled access roadway (i.e., a new overpass over an arterial roadway), the project should include the necessary access for pedestrians and bicyclists on the non-limited access roadway (i.e., paved shoulders, sidewalks, and

pedestrian/bicycle crossing improvements).

Retrofit Roadways with New Pedestrian and Bicycle Facilities

There are several critical locations in the Greensboro Urban Area with significant pedestrian and bicycle safety issues. These locations are often a part of essential links to destinations. In these locations, it may be justified to add new bicycle facilities before a roadway is scheduled to be repaved or reconstructed.

In some places, it may relatively easy to add median islands, sidewalks, and/or extra pavement for shoulders, but other locations may be more difficult to improve pedestrian and bicycle facilities because the improvement may require removing trees, moving landscaping or fences, or regrading ditches or hills. Retrofitting roadways with sidewalks creates similar challenges.

Signage and Wayfinding Projects

This plan recommends that the City of Greensboro remove its existing loop bicycle routes and develop a new signage system to provide more direct bicycle connections between key destinations in the City. This new signage system should continue to be updated in the future based on bicyclist input so that the signs can be as effective as possible at helping people find destinations. The new signed bicycle route system is discussed in detail in Chapter 4.